Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte DANIEL GAGNON
and
CHI-HUA TUNG

_____

Appeal No. 2004-0586
Application 09/710,395

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ON BRIEF

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Before HAIRSTON, KRASS, and RUGGIERO, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-4, 6, 8, 9, 11-17, 19-26 and 28-30.

The invention is directed to nuclear imaging systems. In particular, the invention pertains to a method for diagnostic imaging, and a gamma camera therefor, whereby a detector head having a face for receiving radiation is segmented into side-by-

side distinct portions to enable collimation for emission radiation only. This is said to increase the intensity of transmission radiation received by the uncollimated half of the head. The arrangement is also said to achieve more precise physical and temporal alignment of the two images in order to produce a single combined image which shows not only the radioisotope distribution, but also the surrounding anatomical structure. This is brought about by generating both data sets concurrently without moving the patient between the two collections.

Representative independent claim 28 is reproduced as follows:

28. A gamma camera comprising:

a detector head having a radiation receiving face that is segmented into side-by-side first and second portions;

a radioisotope transmission radiation source disposed across an examination region from the first portion of the radiation receiving face;

a drive for moving the detector head and the radiation source around the examination region;

a SPECT collimator mounted to the second portion of the radiation receiving face; and

one of an axial filter, a transmission radiation collimator, and no collimator covering the first portion of the radiation receiving face.

The examiner relies on the following references:

Hasegawa et al. (Hasegawa)	5,376,795	Dec. 27, 1994
N'Guyen	5,917,189	Jun. 29, 1999
Kaplan	WO 91/00048	Jan. 10, 1991
(Published World Intell. Prop. Org. Application)		

Claims 1-4, 6, 8, 9, 11-17, 19-26 and 28-30 stand rejected under 35 U.S.C. §103. As evidence of obviousness, the examiner cites Hasegawa and N'Guyen, adding Kaplan to this combination with regard to claims 1-4, 6, 8, 9, 11-17, 19-26, 29 and 30.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

OPINION

With regard to independent claim 28, the examiner applies Hasegawa by asserting that Hasegawa teaches essentially everything but that "the SPECT collimator and the optional transmission collimator are positioned (e.g., mounted) side-by-side to the radiation receiving face wherein the radiation receiving face portion under the optional transmission collimator is designated as a first region and the radiation receiving face portion under the SPECT collimator is designated as a second region" (answer-page 6). The examiner then turns to N'Guyen to supply a teaching of a collimator having a first and second region with each region comprising different collimator types,

and concludes that it would have been obvious to provide a collimator comprising a SPECT collimator side-by-side with an optional transmission collimator and segment selector circuitry in the gamma camera of Hasegawa "in order to obtain sequential or simultaneous recording of both emission and transmission data with a single detector having a single collimator..." (answer-page 6).

We will not sustain the rejection of claim 28 under 35 U.S.C. §103 since, in our view, the examiner has failed to provide a prima facie case of obviousness.

Claim 28 requires that the detector head has a radiation receiving face that is segmented into "side-by-side first and second portions," wherein a transmission radiation source is disposed across an examination region from the first portion and a SPECT (single-photon emission computed tomography) collimator is mounted to the second portion.

Even by the examiner's apparent admission, Hasegawa lacks these features. The examiner's reliance of N'Guyen to provide this deficiency of Hasegawa is misplaced because N'Guyen does not teach or suggest a detector head having the distinct first and second portions required by claim 28. Rather, N'Guyen is concerned with providing various regions of a collimator, with

some regions being better suited than others to a particular type of examination. N'Guyen's device makes it possible to conduct physical examinations of patients without the need to change collimators. We find nothing in N'Guyen which would suggest a detector head having a radiation receiving face that is segmented into "side-by-side first and second portions," wherein a transmission radiation source is disposed across an examination region from the first portion and a SPECT collimator is mounted to the second portion.

Moreover, it is hard to follow the examiner's application of Hasegawa to instant claim 28 since the examiner appears to be relying on different, mutually exclusive, embodiments in Hasegawa to provide teachings for various parts of the claimed subject matter. That is, we agree with appellants' analysis, at pages 5-7 of the principal brief, of the examiner's flawed reliance on different embodiments of Hasegawa and we adopt this position as our own.

Since the examiner has not reasonably set forth a prima facie case of obviousness regarding the subject matter of instant claim 28, we will not sustain the rejection of this claim under 35 U.S.C. §103.

We also will not sustain the rejection of claims 1-4, 6, 8,

9, 11-17, 19-26, 29 and 30 under 35 U.S.C. §103.

The examiner adds Kaplan to Hasegawa and N'Guyen for a teaching of multiple detector heads with opposing transmission sources for reducing scan time.

All of the claims recite, in one form or another, the detector head having first and second regions, as discussed supra with regard to claim 28. Independent claim 1 recites "detecting emission radiation events...with only the first region of each detector head" during an emission imaging phase and "detecting transmission radiation events...with only the second region of each detector" during a transmission phase. Independent claim 8 recites "detecting single photon emission radiation events...with the second region of each detector head" during an emission imaging phase and "detecting transmission radiation events...with the first region of each detector head" during a transmission phase. Independent claim 16 recites "detecting emission radiation events...with the first region of each detector head" during an emission imaging phase and "detecting transmission radiation events...with the second region of each detector" during a transmission phase. Independent claim 19 recites "segment selector circuitry connected with the detectors for selectively disabling a different portion of each detector during

collection of each of emission data and transmission data." Independent claim 21 recites the detector head being segmented "into a first portion for detecting emission radiation events for generating emission image data and a second portion for detecting transmission radiation events and generating transmission data." Independent claim 22 recites a collimator for restricting radiation received by an emission imaging region of at least one of the detector heads only to emission radiation traveling along a desired projections path" with "the collimator blocking the transmission radiation from being received by the emission imaging region and enabling transmission radiation to be received by a transmission imaging region of the at least one detector head."

Since none of the applied references, nor any combination of those references, discloses or suggests these specific limitations, no prima facie case of obviousness has been established.

The examiner's decision is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
ERROL A. KRASS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH F. RUGGIERO Administrative Patent Judge	)	

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Thomas E. Kocovsky, Jr.
FAY, SHARPE, FAGAN, MINNICH & McKEE, LLP
Seventh Floor
1100 Superior Avenue
Cleveland, OH 44114-2518